

## OPEN REEL VIDEOTAPE RESTORATION

Tony Conrad

### I. APPLICATION

The tape in question was a 1/2" Sony 60-minute reel, presumed to have been recorded in 1973. Upon playback, no image was produced. A professional transfer house had ascertained the tape to be irreparable and it had been given up for lost by the maker, although the tape was the sole copy of a significant video art work (recorded on a black and white portapak).

### A. TECHNICAL

When first put in play, the head of the tape showed a hint of image, but only momentarily. Presently the forward motion of the tape stalled, and when urged forward, it squeaked, stuttered, and stuck to the head drum. In fastforward no image whatever appeared. The tape would move only for a few moments in fast-forward, then stuck fast. After several tries in fast-forward, the tape moved about 10 minutes, only to come jamming to a freeze against the head drum, causing permanent damage to a short section of the tape, which was soon abraded against the audio heads and other tape guides. Playback was on a Sony AV-8650 deck.

### B. ANALYSIS

Close examination and cleaning of the deck revealed that deposits of backing material and (to a lesser degree of magnetic oxide coating were scraping off and clotting on the tape guides, head drum, and (especially) the skew post. This accumulation of deposits significantly impeded the tape motion, caused the tape to stick to the metal surfaces, and threatened the mechanical stability of the tape (because of possible stretching or other damage caused by the high tension on, and irregular motion of, the tape).

### C. PROCEDURE

By means of an unorthodox tape handling procedure (outlined in detail below), the tape was lubricated with silicone. Simultaneously, the worst of the flaking coating material on the tape was wiped off. Following the procedure, the tape played normally for 10 to 15 minutes at a time - sufficient to re-record the program on a master, for editing to a final restoration mastertape. Quality of the copy is comparable to playback quality when the tape was last seen here, about 1977.

After 10 or 15 minutes, the deposits seen originally again built up to a level sufficient to degrade the image quality, to cause image roll, to make the tape chatter and squeal, and finally to stop the tape. However, a thorough cleaning of the heads, head drum, tape guides, and so forth immediately restored the ability of the tape to run for another segment.

### II. COMMENTARY

The field is full of stories circulating about of video art masters that have deteriorated, that have "lost their signal." Before these tapes are discarded, the procedure outlined here must be tried. The tape treated in this instance was fully and dramatically recovered, the only damage being in handling prior to the lubrication of the tape. Given the age and diagnosis of this tape, it is conceivable that most, or even all, of the vintage videotapes which have "lost signal" (without having been erased by stray magnetic fields) have, in fact, only lost their binder and lubrication.

### A. TOOLS

head cleaning fluid

head cleaning chamois

Q-tips

lint-free wipes (for photo or film use)

strip of flannel or similar absorbent cloth, about 3/4" x 12"

silicone lubricant spray (Union Carbide or equivalent: **not** with oil)

Philips screw driver

empty reel for 1/4" audiotape

45-rpm record. 7" gaffer's tape

## B. PROCEDURE

1. Clean hands: you will handle the videotape. Don't touch the middle of the oxide coating side: try to carry it by the edges at all times.
2. Remove plastic cover from the head drum. Do not open the drum itself. The cover lifts off on the Sony AV-8650. Use Philips screw driver to remove lower front shield (plastic) from the head drum. This will allow careful and complete cleaning of the tape path. without damage to the plastic parts.
3. Assemble a rig which will elevate the righthand (take-up) reel about 9/16" above its usual seating. Do this by taping a 45-rpm 7" record together with an empty audiotape reel using gaffer's tape. They will fit on the take-up reel spindle, and the take-up reel for the videotape can ride atop them. It should then be very close to level with the feed reel. Use two or three small pieces of gaffer's tape, curled on themselves to make a loop, to affix the video take-up reel to the top of the audio reel and the 45.
4. Place the vintage tape on the feed spindle. It may now be wound directly across the take-up reel, without threading it past the heads. Spray enough silicone lubricant on a piece of the wipe material so that it is thoroughly dampened. The wipe will be folded over the tape, and the silicone impregnated areas should contact both sides of the tape.
5. Let the wipe dry completely.
6. While holding the folded piece of wipe gently against both sides of the tape, in the space where it passes between the two reels, you will also need to hold the take-up reel gently, so it does not move (or jump) when the machine is put in "fast-forward."
7. Turn the machine to "fast-forward." The automatic cut-off switch (next to the audio head) will turn the machine off. Use this switch to control the movement of the tape.
8. Very carefully and attentively fast-forward the tape through the silicone wipe. Stop from time to time to change wipes when the wipe becomes dirtied with rubbed-off oxide and backing material. When stopping the tape, be careful to brake the take-up reel especially, and the feed reel, so that the tape does not snap itself or jerk itself into a crunched-up mess on the take-up reel. Should this happen, don't panic: stop and think about how to remove it gently.
9. After the tape has been wiped and cleaned to the end, run it back from the take-up reel to the feed reel, through the wipe. This time less material will be removed from the tape. Notice that more backing material is removed than oxide coating.
10. The tape is now ready to play.

## C. PLAYING THE TAPE

1. Clean the tape path carefully, using Q-tips and head cleaning fluid. Clean the heads. Use a strip of flannel to clean the two posts on either side of the head drum: put cleaning fluid on the cloth, wrap it around the post. and pull the cloth back and forth in a shoe-shine motion to burnish. The posts collect the backing material and yet more than their share of dirt build-up.
2. Play the tape. When it begins to stall, chatter, or play a degraded or unstable image, stop immediately to re-clean the machine as above.
3. Remove the tape from the head drum, and pull it far enough out that it will not be accidentally wiped or dripped with cleaning fluid. Make sure to remember to remove the tape from the capstan and pinch roller, since you will want to put the machine in "play" to clean the heads. When the machine is in "play," you will have to hold the take-up reel from moving, and use the automatic cut-off switch to activate the mechanism. Turn the function switch back to "stop" when you're done.
4. After cleaning, rethread the tape and start playing again. Make sure to double-check the tape threading path before putting the machine in "play," since (with the covers removed) the tape may tend to fall below the guides which direct it around the head drum properly.

## D. GENERAL PRECAUTIONS

- I. Practice this whole procedure with a scratch tape before you risk a valuable original.
2. Don't lean on the metal head drum cover.
3. Maintain an attentive outlook throughout.
4. Always check for slack in the tape before putting the machine in motion.

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*Open Reel Videotape Restoration.* Tony Conrad. *The Independent*, New York, New York. October 1987.

An earlier version of this was published by Hallwalls as an open circular to the field, March 1987.